UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/993,939	11/06/2001	Gordon Good	13220.008001; P5843	5488

			EXAMINER
32615	7590	07/14/2004	DODDS, HAROLD E

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ART UNIT	PAPER NUMBER
2177	

DATE MAILED: 07/14/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/993,939	GOOD ET AL.
	Examiner	Art Unit
	Harold E. Dodds, Jr.	2177

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _07 December 2001_.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-18_ is/are pending in the application.
  4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) _1-18_ is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on _06 November 2001_ is/are: a)☐ accepted or b)☒ objected to by the Examiner.
  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  a)☐ All b)☐ Some * c)☐ None of:
    1.☐ Certified copies of the priority documents have been received.
    2.☐ Certified copies of the priority documents have been received in Application No. _____.
    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)
1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _4_.
4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

U.S. Patent and Trademark Office
PTOL-326 (Rev. 1-04)   **Office Action Summary**   Part of Paper No./Mail Date 6

DETAILED ACTION

Drawings

1.   The drawings are objected to because Figure 6 is meaningless without a

title. Recommended title for Figure 6 is "Block Diagram of the CSN Generator."

Corrected drawing sheets are required in reply to the Office action to avoid

abandonment of the application. Any amended replacement drawing sheet should

include all of the figures appearing on the immediate prior version of the sheet, even if

only one figure is being amended. The figure or figure number of an amended drawing

should not be labeled as "amended." If a drawing figure is to be canceled, the

appropriate figure must be removed from the replacement sheet, and where necessary,

the remaining figures must be renumbered and appropriate changes made to the brief

description of the several views of the drawings for consistency. Additional replacement

sheets may be necessary to show the renumbering of the remaining figures. The

replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as

per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the

changes are not accepted by the examiner, the applicant will be notified and informed of

any required corrective action in the next Office action. The objection to the drawings

will not be held in abeyance.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for

all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3.   Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stokes et al. ("The LDUP Replication Update Protocol") and Oulid-Aissa et al. (U.S. Patent No. 5,835,757).

4.   Stokes renders obvious independent claim 1 by the following:

"...a supplier server..." at p. 3, sec. 4.

"...a consumer server in communication with the supplier server..." at p. 3, sec. 4.

"...that manage replication of data contained within the directory server..." at p. 3, sec. 3.

"...from the supplier server to the consumer server..." at p. 3, sec. 4.

"...and a change sequence number..." at p. 9, sec. 5.3.2.2.

"...used to determine ordering of operations..." at p. 3, sec. 3.

"...performed on the consumer server..." at p. 3, sec. 4.

"...wherein replication of data is managed using the change sequence number..." at p. 3, sec. 3 and p. 9, sec. 5.3.2.2.

Stokes does not teach the use of pluggable services.

5.   However, Oulid-Aissa teaches the use of pluggable services as follows:

"...a plurality of pluggable services..." at col. 3, lines 42-45.

It would have been obvious to one of ordinary skill at the time of the invention to combine Oulid-Aissa with Stokes to provide pluggable services in order to support true distributed transparencies for distributed databases. Stokes and Oulid-Aissa have similar applications and use many technologies in common. Stokes and Oulid-Aissa teach the use of protocol, the use of servers, the updating of data, the use of directories, the use of numbers, and the use of sequences. Stokes provides consumer and supplier servers and change sequence numbers and Oulid-Aissa provides pluggable services.

6.   Claims 10, 13, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stokes et al. ("The LDUP Replication Update Protocol"), Oulid-Aissa et al. (U.S. Patent No. 5,835,757), and Long et al. (U.S. Patent No. 5,805,822).

Stokes renders obvious independent claims 10 and 18 by the following:

"...initializing the change sequence number..." at p. 5, sec. 5.1 and p. 9, sec. 5.3.2.2.

"...retrieving a sequence number portion..." at p. 7, sec. 5.3 and p. 9, sec. 5.3.2.2.

"...retrieving a replica identifier portion..." at p. 7, sec. 5.3 and p. 6, sec. 5.1.

"...the sequence portion..." at p. 9, sec. 5.3.2.2.

"...the replica identifier portion..." at p. 6, sec. 5.1.

"...are joined into a tuple that forms the change sequence number..." at p. 6, sec. 5.1 and p. 9, sec. 5.3.2.2.

The term "set" is used for "initialize", the term "request" is used for "retrieve", and the term "set" is used for group or tuple.

Stokes does not teach the use of time stamps or the use of sub-sequences.

7.   However, Oulid-Aissa teaches the use of time stamps as follows: "...retrieving a timestamp portion..." at col. 21, lines 16-20 and col. 28, lines 10-20. "...wherein the timestamp portion..." at col. 28, lines 10-20.

It would have been obvious to one of ordinary skill at the time of the invention to combine Oulid-Aissa with Stokes to provide time stamps in order to identify the time that a record was either created or modified.. Stokes and Oulid-Aissa have similar applications and use many technologies in common. Stokes and Oulid-Aissa teach the use of protocol, the use of servers, the updating of data, the use of directories, the use of numbers, and the use of sequences. Stokes provides consumer and supplier servers and change sequence numbers and Oulid-Aissa provides time stamps.

Oulid-Aissa does not teach the use of sub-sequence numbers.

8.   However, Long teaches the use of sub-sequence numbers as follows: "...and retrieving a sub-sequence number portion.." at col. 10, lines 8-10 and col. 6, lines 38-42. "...and the sub-sequence portion..." at col. 6, lines 38-42.

It would have been obvious to one of ordinary skill at the time of the invention to combine Long with Stokes and Oulid-Aissa to provide sub-sequence numbers in order to identify the sub-segments of a set when the set is resegmented into smaller groupings. Stokes, Oulid-Aissa, and Long have related applications and use many

technologies in common. Stokes, Oulid-Aissa, and Long teach the use of protocol, the

use of servers, the use of data, the use of numbers, and the use of sequences and

Oulid-Aissa and Long teach the use of computers, the use of databases, the use of

networks, and the use of clients. Stokes provides consumer and supplier servers and

change sequence numbers, Oulid-Aissa provides time stamps, and Long provides sub-

sequence numbers.

9.   As per claim 13, the "...the timestamp portion comprises a network offset

component...," is taught by Oulid-Aissa at col. 28, lines 10-20, col. 2, lines 5-10, and col.

28, lines 22-23.

10.   Claims 2, 5, 9 and 17 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Stokes and Oulid-Aissa as applied to the claims above, and further in

view of Long.

As per claim 2, the "...change sequence number...," is taught by Stokes at p. 9,

sec. 5.3.2.2,

the "...is a tuple...," is taught by Stokes at p. 9, sec. 5.3.2.2,

the "...comprising a time stamp portion...," is taught by Oulid-Aissa at col. 28, lines 10-

20,

the "...sequence number portion...," is taught by Stokes at p. 9, sec. 5.3.2.2,

the "...replica identifier portion...," is taught by Stokes at p. 6, sec. 5.1,

but the "...and a sub-sequence number portion...," is not taught by either Stokes or

Oulid-Aissa.

However, Long teaches the use of sub-sequence numbers as follows:

"...Field 32 contains a sub-sequence number for this block when
the original segment (such as the entire transmission block of
FIG. 2) is re-segmented into smaller sub-segments when required
for re-transmission after a failure to receive the original
block..." at col. 6, lines 38-42.

It would have been obvious to one of ordinary skill at the time of the invention to combine Long with Stokes and Oulid-Aissa to provide sub-sequence numbers in order to identify the sub-segments of a set when the set is resegmented into smaller groupings. Stokes, Oulid-Aissa, and Long have related applications and use many technologies in common. Stokes, Oulid-Aissa, and Long teach the use of protocol, the use of servers, the use of data, the use of numbers, and the use of sequences and Oulid-Aissa and Long teach the use of computers, the use of databases, the use of networks, and the use of clients. Stokes provides consumer and supplier servers and change sequence numbers, Oulid-Aissa provides time stamps, and Long provides sub-sequence numbers.

11.   As per claim 5, the "...the timestamp portion comprises a network offset component...," is taught by Oulid-Aissa at col. 28, lines 10-20, col. 2, lines 5-10, and col. 28, lines 22-23.

12.   As per claims 9 and 17, the "...change sequence number is assigned...," is taught by Stokes at p. 9, sec. 5.3.2.2 and p. 7, sec. 5.3

and the "...when an entry is modified by a client...," is taught by Oulid-Aissa at col. 26, lines 6-11 and col. 14, lines 44-45. The term "set" has been used for "assign" and the term "transaction" has been used for "entry".

13.   Claim 3 rejected under 35 U.S.C. 103(a) as being unpatentable over

Stokes and Oulid-Aissa as applied to claim 1 above, and further in view of Horst et al.

(U.S. Patent No. 6,567,892).

As per claim 3, the "...of the change sequence number...," is taught by Stokes at

p. 9, sec. 5.3.2.2,

but the "...highest value..."

and the "...is maintained in stable storage...," is not taught by either Stokes or Oulid-

Aissa.

However, Horst teaches the use of the highest value and stable memory as

follows:

```
"...The sectors of a disk are mapped to LBA values in sequence
from 0 to the highest LBA on the disk or array..." at col. 11,
lines 27-29.
```

```
"...If either target bin is Stable, both bins are changed to
hanging and committed to nonvolatile storage before the normal
disk write is begun..." at col. 16, lines 29-31.
```

It would have been obvious to one of ordinary skill at the time of the invention to

combine Horst with Stokes and Oulid-Aissa to provide highest values and stable

storage to maintain the highest value for the sequence numbers in memory such that it

will remain whenever the power is off in order to maintain an orderly update of the data.

Stokes, Oulid-Aissa, and Horst have related applications and use many technologies in

common. Stokes, Oulid-Aissa, and Horst teach the use of servers, the update of data,

the use of numbers, and the use of sequences and Oulid-Aissa and Horst teach the use

of computers, the use of databases, and the use of networks. Stokes provides

consumer and supplier servers and change sequence numbers, Oulid-Aissa provides

time stamps, and Horst provides stable storage for the highest value of the update

sequence number.

14.   Claims 4 and 12 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Stokes, Oulid-Aissa, and Long as applied to claims 2 and 10 above

respectively, and further in view of Terry et al. (U.S. Patent No. 6,732,171) and Orcutt

(U.S. Patent No. 5,581,753).

As per claims 4 and 12, the "...the timestamp portion...," is taught by Oulid-Aissa

at col. 28, lines 10-20,

but the "...is represented by logical time..."

and the "...and is thirty-two bits in length...," are not taught by either Stokes, Oulid-Aissa,

or Long.

However, Terry teaches the use of logical time as follows:

```
"...Each server maintains its own version vector with the
following invariant: if a server has <S,c> in its version
vector, then it has received all Writes that were assigned a WID
by server S before or at logical time c on S's clock..."
```

It would have been obvious to one of ordinary skill at the time of the invention to

combine Terry with Stokes, Oulid-Aissa, and Long to provide logical time stamps in

order to reference the time stamps to system entities such as servers. Stokes, Oulid-

Aissa, Long, and Terry have related applications and use many technologies in

common. Stokes, Oulid-Aissa, Long, and Terry teach the use of servers, the use of

data, the use of numbers, and the use of sequences and Oulid-Aissa, Long, and Terry

teach the use of computers, the use of databases, the use of clients, and the updating

of data. Stokes provides consumer and supplier servers and change sequence

numbers, Oulid-Aissa provides time stamps, Long provides sub-sequence numbers,

and Terry provides logical time stamps.

Terry does not teach the use of thirty-two bit variables.

However, Orcutt teaches the use of thirty-two bit variables as follows:

```
"...Full support for large disks may require the use of sixty-
four bit variables to hold sector numbers.  Although shorter
variables (such as thirty-two bit variables) may be used with
many partitions on many systems 400, the larger variables are
preferred..." at col. 17, lines 24-28.
```

It would have been obvious to one of ordinary skill at the time of the invention to

combine Orcutt with Stokes, Oulid-Aissa, Long, and Terry to provide thirty-two bit

variables in order to permit an application designer to define the size of variables.

Stokes, Oulid-Aissa, Long, Terry, and Orcutt have related applications and use many

technologies in common. Stokes, Oulid-Aissa, Long, Terry, and Orcutt teach the use of

servers, the use of data, the use of numbers, and the use of sequences, Oulid-Aissa,

Long, Terry, and Orcutt teach the use of computers, the use of databases, the use of

clients, and the updating of data, Stokes, Oulid-Aissa, and Orcutt teach the use of

directories, and Oulid-Aissa, Long, and Orcutt teach the use of networks. Stokes

provides consumer and supplier servers and change sequence numbers, Oulid-Aissa

provides time stamps, Long provides sub-sequence numbers, Terry provides logical

time stamps, and Orcutt provides thirty-two bit variables.

15.   Claims 6 and 14 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Stokes, Oulid-Aissa, and Long as applied to claims 2 and 10 above

respectively, and further in view of Safadi (U.S. Patent No. 5,892,910) and Mikurak

(U.S. Patent No. 5,892,910).

As per claims 6 and 14, the "...sequence number portion is generated...," is

taught by Stokes at p. 9, sec. 5.3.2.2 and p. 14, sec. 7,

but the "...by an incremental counter..."

and the "...and is sixteen bits in length..." is not taught by either Stokes, Oulid-Aissa, or

Long.

However. Safadi teaches the use of an incremental counter as follows:

```
"...The continuity counter field 614 is an incremental counter
which increments with each transport packet with the same
PID..." at col. 19, lines 28-30.
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It would have been obvious to one of ordinary skill at the time of the invention to

combine Safadi with Stokes, Oulid-Aissa, and Long to provide incremental counters in

orger to provide unique identifiers for the change sequence numbers. Stokes, Oulid-

Aissa, Long, and Safadi have related applications and use many technologies in

common. Stokes, Oulid-Aissa, Long, and Safadi teach the use of protocol, the use of

servers, the updating of data of data, the use of numbers, and the use of sequences

and Oulid-Aissa, Long, and Safadi teach the use of computers, the use of databases,

the use of networks, and the use of clients. Stokes provides consumer and supplier

servers and change sequence numbers, Oulid-Aissa provides time stamps, Long

provides sub-sequence numbers, and Safadi provides incremental counters.

Safadi does not teach the use of sixteen bit variables.

However, Mikurak teaches the use of sixteen bit variables as follows.

"...One solution for creating and processing call records is to implement a fixed length call record format, such as a 32-word call record. A word is two (2) bytes, or sixteen (16) bits..." at col. 49, lines 7-11.

It would have been obvious to one of ordinary skill at the time of the invention to combine Mikurak with Stokes, Oulid-Aissa, Long, and Safadi to provide sixteen bit variables in order to permit an application designer to define the size of variables. Stokes, Oulid-Aissa, Long, Safadi, and Mikurak have related applications and use many technologies in common. Stokes, Oulid-Aissa, Long, Safadi, and Mikurak teach the use of protocol, the use of servers, the updating of data of data, the use of numbers, and the use of sequences and Oulid-Aissa, Long, Safadi, and Mikurak teach the use of computers, the use of databases, the use of networks, and the use of clients and Stokes, Oulid-Aissa, and Mikurak teach the use of directories. Stokes provides consumer and supplier servers and change sequence numbers, Oulid-Aissa provides time stamps, Long provides sub-sequence numbers, Safadi provides incremental counters, and Mikurak provides sixteen bit variables.

16.   Claims 7, 8, 15, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stokes, Oulid-Aissa, and Long as applied to claims 2 and 10 above respectively, and further in view of Mikurak.

As per claims 7 and 15, the "...replica identifier portion...," is taught by Stokes at p. 6, sec. 5.1,

the "...denotes an identifier of the consumer server...," is taught by Stokes at p. 6, sec. 5.1 and p. 3, sec. 4,

the "...that generated the change sequence number...," is taught by Stokes at p. 14, sec.

7 and p. 9, sec. 5.3.2.2,

but the "...and is sixteen bits in length...," is not taught by either Stokes, Oulid-Aissa, or

Long.

However, Mikurak teaches the use of sixteen bit variables as follows.

```
"...One solution for creating and processing call records is to
implement a fixed length call record format, such as a 32-word
call record. A word is two (2) bytes, or sixteen (16) bits..."
at col. 49, lines 7-11.
```

It would have been obvious to one of ordinary skill at the time of the invention to

combine Mikurak with Stokes, Oulid-Aissa, and Long, to provide sixteen bit variables in

order to permit an application designer to define the size of variables. Stokes, Oulid-

Aissa, Long, and Mikurak have related applications and use many technologies in

common. Stokes, Oulid-Aissa, Long, and Mikurak teach the use of protocol, the use of

servers, the updating of data of data, the use of numbers, and the use of sequences

and Oulid-Aissa, Long, and Mikurak teach the use of computers, the use of databases,

the use of networks, and the use of clients and Stokes, Oulid-Aissa, and Mikurak teach

the use of directories. Stokes provides consumer and supplier servers and change

sequence numbers, Oulid-Aissa provides time stamps, Long provides sub-sequence

numbers, and Mikurak provides sixteen bit variables.

17.   As per claims 8 and 16, the "...sub-sequence number portion...," is taught

by Long at col. 6, lines 38-42,

the "...is used to order operations within a single operation...," is taught by Stokes at p.

3, sec. 3,

and the "...and is sixteen bits in length...," is taught by Mikurak at col. 49, lines 7-11.

18.   Claim 11 rejected under 35 U.S.C. 103(a) as being unpatentable over

Stokes, Oulid-Aissa, and Long as applied to claim 10 above, and further in view of

Horst.

As per claim 11, the "...of the change sequence number...," is taught by Stokes at

p. 9, sec. 5.3.2.2,

but the "...highest value..."

and the "...is maintained in stable storage...," is not taught by either Stokes, Oulid-Aissa,

or Long.

However, Horst teaches the use of the highest value and stable memory as

follows:

```
"...The sectors of a disk are mapped to LBA values in sequence
from 0 to the highest LBA on the disk or array..." at col. 11,
lines 27-29.
```

```
"...If either target bin is Stable, both bins are changed to
hanging and committed to nonvolatile storage before the normal
disk write is begun..." at col. 16, lines 29-31.
```

It would have been obvious to one of ordinary skill at the time of the invention to

combine Horst with Stokes, Oulid-Aissa, and Long to provide highest values and stable

storage to maintain the highest value for the sequence numbers in memory such that it

will remain whenever the power is off in order to maintain an orderly update of the data.

Stokes, Oulid-Aissa, Long, and Horst have related applications and use many

technologies in common. Stokes, Oulid-Aissa, Long, and Horst teach the use of servers,

the update of data, the use of numbers, and the use of sequences and Oulid-Aissa,

Long, and Horst teach the use of computers, the use of databases, and the use of

networks. Stokes provides consumer and supplier servers and change sequence

numbers, Oulid-Aissa provides time stamps, Long provides sub-sequence numbers,

and Horst provides stable storage for the highest value of the update sequence number.

Conclusion

19.   Any inquiry concerning this communication or earlier communications from

the examiner should be directed to Harold E. Dodds, Jr. whose telephone number is

(703)-305-1802. The examiner can normally be reached on Monday - Friday 8:00 -

4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, John E. Breene can be reached on (703)-305-9790. The fax phone number

for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Harold E. Dodds, Jr.
Patent Examiner
July 7, 2004

PRIMARY EXAMINER
GRETA ROBINSON